

(PCT Article 36 and Rule 70)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/012046

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-35 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-49 received by this Authority on 31.10.2005 with letter of 31.10.2005
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1, 2 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
1.	Statement
	Novelty (N)
	Claims <u>1-49</u> YES
	Claims _____ NO
	Inventive step (IS)
	Claims <u>1-49</u> YES
	Claims _____ NO
	Industrial applicability (IA)
	Claims <u>1-49</u> YES
	Claims _____ NO
2.	Citations and explanations (Rule 70.7)
1.	The present report makes reference to the following documents:
	D1: US-A-3 806 364 (GASCO M, IT) 23 April 1974 (1974-04-23)
	D2: DATABASE WPI Section Ch, Week 199841 Derwent Publications Ltd., London, GB; Class D17, AN 1998-479717 XP002317956 & RU 2 105 817 C1 (UVAROSAKHAR STOCK CO) 27 February 1998 (1998-02-27)
	D3: US-A-4 009 706 (SHAUGHNESSEY ET AL) 1 March 1977 (1977-03-01)
	D4: WO 99/24623 A (SUED-CHEMIE AG; MARTINEZ REYES, CARLOS; ORTIZ NIEMBRO, JOSE ANTONIO; C) 20 May 1999 (1999-05-20)
	D5: US-A-4 288 551 (GUDNASON ET AL) 8 September 1981 (1981-09-08)
	D6: GB-A-2 136 446 (THE COCA-COLA COMPANY) 19 September 1984 (1984-09-19).
	/...

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
2.	<p data-bbox="412 401 935 432">CLAIMS 1, 18, 27, 39 and 42</p> <p data-bbox="412 501 1370 632">Document D2 is considered to be the prior art closest to the subject matter of claims 1, 18, 27, 39 and 42.</p> <p data-bbox="412 699 1377 879">Both D2 and the present application describe the preliming of the raw juice by the addition of milk of lime and polyacrylamide, a separation step, and the main liming process with carbonate ions.</p> <p data-bbox="412 947 1414 1373">Thus, the objective technical problem addressed by the present invention consists in devising an improved method for the extract purification of raw sugar beet juice, the conventional method steps being substantially retained yet the extract purification being more straightforward to implement and more effective while, at the same time, a new type of non-saccharose substance with particularly advantageous properties can be obtained.</p> <p data-bbox="412 1440 1377 1919">The difference between the teaching of the claims and the closest prior art lies, in essence, in the choice of the polyacrylamide which, according to the invention, is present as a copolymer of acrylamide and sodium acrylate, having a molecular mass of between approximately 5 and approximately 22 millions. A further difference is found in the concentration of the copolymer, which according to the invention, is used in a concentration of between 1 and 8 ppm.</p>

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Using the method according to the invention, the new preliming process can be carried out in a sequence of steps similar to that of the known preliming method. However, by contrast with the known method, the non-saccharose substances that are precipitated or coagulated during the preliming process are separated immediately after the preliming step since the raw sugar beet juice is already substantially purer thereafter owing to the separation, as per the invention, of the non-saccharose substances by using the copolymer according to the invention.

No document describes all the above technical features. For this reason, a person skilled in the art would disregard documents D3 to D6. The teachings of said documents cannot be applied to methods of the type in question. The prior art citations do not describe a method for extract purification consisting of the preliming step, the addition of at least one copolymer, the separation of the coagulum from the preliming juice, the main liming process and the implementation of a first carbonation, or a corresponding method for obtaining concentrates of non-saccharose substances. Thus, for a person skilled in the art the application of these features to a similar effect is not obvious.

Claims 1, 18, 27, 39 and 42 (and dependent claims 2-18, 19-26, 28-38, 40, 41, 43, 44) therefore involve an inventive step (PCT Article 33(3)).

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3.	<p data-bbox="412 405 570 430">CLAIM 45</p> <p data-bbox="412 506 1373 829">D1 and D2 are the closest prior art. Both documents relate to devices for the extract purification of raw sugar beet juice. In a first container, the raw juice is prelined and the polyacrylamide added. Then, in a first separating device, the coagulant floc obtained during prelining is separated from the prelining juice.</p> <p data-bbox="412 898 1373 1472">The difference between the device proposed in the prior art citations and the device according to the claims is to be found, in essence, in the fact that the device according to the claims provides at least one further second separating device (23) for the further concentration of the coagulant floc as well as means for conveying the prelining juice from the first separating device together with the juice from the second separating device in a common line (35). In this way, a particularly concentrated coagulant floc is obtained.</p> <p data-bbox="412 1541 1352 1818">The technical problem addressed by the invention consists in providing a device for carrying out the method according to the invention, a particularly highly concentrated coagulant floc being obtainable thereby and the method being otherwise carried out in the conventional manner.</p> <p data-bbox="1312 1887 1386 1913">/...</p>

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None of the prior art citations relates to the objective technical problem as set forth above and none of said documents gives any indication of how this problem can be solved by means such as the device of interest. In particular, there is nothing to suggest providing a second separating device for the further concentration of the coagulant floc and conveying the preliming juice from the two separating devices together in a common line.

Claim 45 (and dependent claims 46-49) therefore involve an inventive step (PCT Article 33(3)).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box I**

1. The amendments submitted with the letter of 31 October 2005 do not introduce substantive matter (claim 27: page 25, lines 20-26; claim 42: page 28, lines 2-11; claim 45: page 29, lines 12-24; page 31 line 25 to page 33, line 12; figure 2, claims 48 and 49) and comply with the requirements of PCT Article 34(2)(b).: